IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant:	Serna, *et al.*
Title:	PACKET FORWARDING TO A CONNECTION-ORIENTED NETWORK
Appl. No.:	10/524,587
International Filing Date:	8/21/2002
371(c) Date:	02/15/2005
Examiner:	Pablo N. Tran
Art Unit:	2618

BRIEF ON APPEAL

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Examiner:

Under the provisions of 37 C.F.R. § 41.37, this Appeal Brief is being filed in response to the final Office Action dated August 20, 2008, finally rejecting Claims 1-10 and 15 of the above-referenced patent application (Application) and the Advisory Action dated November 13, 2008. This Appeal Brief is being filed together with a credit card payment form in the amount of $540.00 covering the covering Rule 17(c) appeal fee for a large entity. The Notice of Appeal was submitted on November 24, 2008, making January 24, 2009 two months from the date of filing the Notice of Appeal. As a result, this Appeal Brief is being timely filed such that no extension of time is necessary. If this fee is deemed to be insufficient, authorization is hereby given to charge any deficiency (or credit any balance) to the undersigned deposit account 19-0741.

Appellants respectfully request reconsideration of the Application.

REAL PARTY IN INTEREST

This Application has been assigned to Spyder Navigations L.L.C., having a place of business at 1209 Orange Street, Wilmington, Delaware, 19801 USA. The assignment from the inventors to Nokia Corporation was recorded in the records of the United States Patent and Trademark Office at Reel/Frame 016874/0405 on February 15, 2005. The assignment from Nokia Corporation to Spyder Navigation L.L.C. was recorded in the records of the United States Patent and Trademark Office at Reel/Frame 019833/099 on September 17, 2007.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences that will directly affect, be directly affected by, or have bearing on the present appeal, that are known to Appellants or Appellants' patent representative.

STATUS OF CLAIMS

This is an appeal from the final Office Action dated August 20, 2008, finally rejecting Claims 1-10 and 15. Claims 11-14 have been withdrawn. Claim 16 has been canceled. Claims 1-10 and 15 are being appealed. Claims 1-10 and 15 with the appropriate status reference are shown in the attached Claims Appendix.

STATUS OF AMENDMENTS

No amendments have been made in the present Application subsequent to receipt of the final Office Action dated August 20, 2008.

SUMMARY OF CLAIMED SUBJECT MATTER

Various embodiments of the present invention relate to methods for forwarding a data packet in a system having an access router (AR) 20 that determines from received data packets if a multicast data packet is to be sent (*see. e.g.,* Abstract, paragraphs [0037] and [0038]). When a unicast data packet arrives at the AR 20 and the AR 20 does not know the link layer address associated with the network layer address of the received unicast data packet, the AR 20 generates a link-layer frame 70' with a broadcast in the header portion 71' and the unicast destination address in the payload portion 72' (see paragraphs [0037] and [0038]). Appellants respectfully submit that these various embodiments of the present invention may be best understood by referring in particular to Figures 1, 2, and 3 of the present application, and the supporting text of the application description.

According to one embodiment, the method includes the operations of receiving the data packet where the data packet includes a unicast destination address corresponding to a mobile node 50, generating a link-layer frame 70' where the link-layer frame 70' includes a broadcast address 71' and the unicast destination address 72', and sending, via the broadcast address, the link-layer frame 70' to a plurality of access devices 31-3n. At least one access device 32 of the plurality of access devices 31-3n supports the mobile node 50. (See paragraphs [0038] and [0040]).

According to another embodiment, a routing device 20 for forwarding a data packet includes a receiving unit, a checking unit, an addressing unit, and a forwarding unit. The receiving unit is configured to receive the data packet where the data packet includes a unicast destination address corresponding to a mobile node 50. The checking unit is configured to determine whether a link-layer address corresponding to the mobile node 50 is

available. The addressing unit is configured to generate a link-layer frame 70' if the link-layer address corresponding to the mobile node 50 is not available where the link-layer frame 70' includes the unicast destination address 72' and a broadcast address 71'. The forwarding unit is configured to forward, via the broadcast address, the link-layer frame 70' to a plurality of access devices 31-3n where at least one access device 32 of the plurality of access devices 31-3n supports the mobile node 50. (See paragraphs [0038] and [0040]).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The first ground of rejection to be reviewed on appeal is the Examiner's rejection of Claims 1-10 and 15 under 35 U.S.C. § 102(a) as being anticipated by European Patent Application No. 1,071,296 to Leroy et al. (hereinafter "Leroy").

The second ground of rejection to be reviewed on appeal is the Examiner's rejection of Claim 3 under 35 U.S.C. § 102(a) as being anticipated Leroy.

The third ground of rejection to be reviewed on appeal is the Examiner's rejection of Claim 10 under 35 U.S.C. § 102(a) as being anticipated Leroy.

The claims in their current condition are attached hereto in the Appendix.

ARGUMENT

I. LEGAL STANDARD

Section 102 of Title 35 of the United States Code provides in pertinent part:

> A person shall be entitled to a patent unless –
> . . . .
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent,
> . . . .

(35 U.S.C. § 102.)

Under section 102, a claim is anticipated, i.e., rendered not novel, when a prior art reference discloses, either expressly or inherently, every limitation of the claim. *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997); *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997). In this regard, to be inherent, a property must be necessarily contained in the prior art reference. *See Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991); *Electro Medical Sys., S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 1052 (Fed. Cir. 1994). That inherent property may be proven by the use of extrinsic evidence. *Continental Can Co.*, 948 F.2d at 1268.

II. REJECTION OF CLAIMS 1-10 AND 15 UNDER 35 U.S.C. § 102(a)

In the August 20, 2008, final Office Action, the Examiner rejected Claims 1-10 and 15 under 35 U.S.C. § 102(a) as being anticipated by Leroy. For at least the reasons set forth below, Appellants submit that the rejection of Claims 1-10 and 15 is improper and should be reversed.

A. The Rejection Of Claims 1-10 And 15 Should Be Reversed Because Leroy Does Not Disclose All Limitations Of Independent Claims 1 And 15.

To anticipate a claimed invention, all the claim limitations must be disclosed by the prior art. 35 U.S.C. § 102(a). *In re Schreiber*, 128 F.3d at 1477. "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970). Appellants respectfully submit that Leroy does not disclose all of the recited elements of Claims 1-10 and 15.

1. Leroy does not disclose receiving the data packet, wherein the data packet includes a "unicast destination address" as recited in Claims 1-10 and 15.

On page 4 of the Final Office Action dated August 20, 2008, the Examiner argues that the element "receiving the data packet, wherein the data packet includes a unicast destination address" of Claims 1-10 and "a receiving unit configured to receive the data packet, wherein the data packet includes a unicast destination address corresponding to a mobile node" of Claim 15 are shown in Leroy. Specifically, the Examiner states:

> *In response to the Applicant, Leroy disclosed a private **multi-cast** address (PR-MCA) wherein this is a destination address of a mobile device.*

(Final Office Action dated August 20, 2008, page 4, emphasis added.) In response to this argument, Appellant argued:

> However, independent Claims 1 and 15 include "**unicast destination address**" and not only a "destination address." To apply the teachings of Leroy regarding a multi-cast address is to ignore the term "unicast" preceding "destination address" in the claims. A *multi-cast* address is not the same as a *unicast* destination address.

(Reply Under 37 CFR 1.116 dated October 20, 2008, page 6, emphasis in the original.)

In the Advisory Action dated November 13, 2008, the Examiner responded to Appellants arguments in the Reply dated October 20, 2008, by arguing that *"[t]he specification does not explicitly disclose a unicast address. The destination address as referring in the specification is a network layer address of an address of a mobile device (see paragraph 0025)."* (Advisory Action, page 2, italics added.) Appellant respectfully disagrees. First, the Examiner is mistaken—the specification of the present application *does* indeed explicitly disclose a unicast address. Paragraph [0037] of the application states: "**the incoming packet at the AR 20 is not a multicast data packet but a unicast one**." Paragraph [0038] of the application states: "the case of a **received unicast IP data packet** is described with reference to FIG. 1."

Second, the Examiner's citation to paragraph [0025] of the application and referral to use of "a network layer address of an address of a mobile device" confuses the teachings of the patent application. Paragraph [0037] of the application explains that in the case of "a neighbor solicitation message in the address resolution protocol", the incoming data packet is "**not a multicast data packet but a unicast one**." The application describes what actions are taken when a unicast destination address is received in paragraph [0038]:

> In the following, the case of a **received unicast IP data packet** is described with reference to FIG. 1. **When the AR 20 cannot determine a link-layer address based on the given network-layer address, e.g. IP address**, received in a header portion 61' of the received IP data packet with a payload portion 62', it recognizes that a packet has to be sent using the above multicast mechanism according to the present invention. To achieve this, the AR 20 **generates a link-layer frame** 70' with a broadcast link-layer address in its header portion 71' and the neighbor solicitation message in its payload portion 72'.

(emphasis added.) Thus, when a unicast destination address is found, the AR generates a link-layer frame which includes a broadcast address and the unicast destination address. As

explained above, in the case of "a neighbor solicitation message in the address resolution protocol", the incoming data packet is "**not a multicast data packet but a unicast one**." (Application, paragraph [0037].)

2. Leroy does not disclose "generating a link-layer frame, wherein the link-layer frame includes a broadcast address and the unicast destination address" as recited in Claims 1-10 and 15.

Leroy also fails to disclose "generating a link-layer frame, wherein the link-layer frame includes a broadcast address and the unicast destination address" included in the rejected claims. In the Advisory Action dated November 13, 2008, the Examiner responded to Appellant's arguments by stating:

> *Leroy disclose such a link layer frame (see fig. 2 and paragraph, 0022-0024), wherein the link layer frame include a link layer address (PR-H), payload (see paragraph 0022), and destination address (PU-H, PR-H) and also as disclosed in the prior art.*

(Advisory Action, page 2, italics added.) Appellant respectfully disagrees.

The data packet structure shown in Fig. 2 of Leroy has addresses PU-H and PR-H. Leroy describes the PU-H as an "overhead section or IP header" (see paragraph 0022) and PR-H as an "overhead section" (see paragraph 0023). Neither PU-H nor PR-H are unicast destination addresses. Indeed, Leroy simply does not disclose a link-layer frame including a unicast destination address.

As Appellant argued previously, **Leroy simply does not receive a unicast destination address and it simply does not generate a link-layer frame having a unicast destination address**. (Reply Under 37 CFR 1.116 dated October 20, 2008, page 6, emphasis in the original.) A rejection under 35 U.S.C. § 102(a) requires *exact* correspondence of each

and every claim element. Appellant respectfully requests the Board reverse the rejection of Claims 1-10 and 15 based on Leroy.

3. A "unicast destination address" as recited in Claims 1-10 and Claim 15 is not obvious in view of Leroy

A claim can be found unpatentable even if the prior art does not disclose all of the elements of the claim, if all the claim limitations are taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974). In the Reply dated October 20, 2008, Appellant argued:

> Even if, *arguendo*, the Examiner were to consider an obviousness analysis of the claims based on Leroy, there is sufficient discussion of the benefits of multi-casting in Leroy that it would be considered "teaching away" from the use of a unicast destination address.

(Reply dated October 20, 2008, page 7, emphasis in the original.)

In paragraph [0006] of Leroy, one of the paragraphs cited by the Examiner in support of the rejection, it states:

> [0006] Indeed, by **multi-casting the internal data packets** ... that tunnel external data packets ... that belong to an external multi-cast connection, **it is avoided that the same public data packets are duplicated** and encapsulated in different private data packets that are transferred over at least partially common routes in the mobile data network.

(emphasis added.) Thus, Leroy teaches that "multi-casting the **internal** data packets" avoids the inefficient duplication of data packets that are transferred over common routes in a data network. Such a teaching would not suggest receiving a unicast destination address or much less generating a link-layer frame that *includes* a unicast destination address within it.

Therefore, Appellants respectfully submit that Leroy does not teach, suggest, or disclose elements recited in Claims 1-10 and 15. Therefore, for at least this reason, Appellants respectfully request that the rejection of Claims 1-10 and 15 be reversed.

III. REJECTION OF CLAIM 3 UNDER 35 U.S.C. § 102(a)

In the August 20, 2008, final Office Action, the Examiner rejected Claim 3 under 35 U.S.C. § 102(a) as being anticipated by Leroy. For at least the reasons set forth below, Appellants submit that the rejection of Claim 3 is improper and should be reversed. Rejected Claim 3 states:

> 3. The method according to claim 1, further comprising:
>
> determining that the at least one access device supports the mobile node; and
>
> forwarding the link-layer frame to the mobile node.

(underlining added.)

On page 3 of the Final Office Action dated August 20, 2008, the Examiner cites paragraphs [0002], [0024] and [0030] of Leroy, and asserts that "it is clear that MS register with SGSN." *Even assuming* that Leroy teaches the claimed "link-layer frame" (which, because the claimed link-layer frame includes a **unicast destination address** as discussed above, it does not), Leroy does not disclose "forwarding the link-layer frame to the mobile node." Paragraph [0030] of Leroy explains that:

> **If the second mobile station MS2 wants to be come member of the multi-cast group** with internet multi-cast address PU-MCA, **it will send a public join message** to the service node SGSN3 in whose service area the mobile station MS2 is residing. ... The private multi-cast tree in GPRS-SYSTEM is updated so that **the internet data packets PU-DP addressed to the internet multi-cast address PU-MCA will be routed to the mobile station MS2**. ... this multi-cast group is addressed

> within the GPRS-SYSTEM with private multi-cast address PR-MCA that is linked to the public multi-cast address PU-MCA via a table PU-PR-TABLE in the gateway node GGSN1 …

(emphasis added.)

Thus, mobile station MS2 in Leroy receives the internet data packets PU-DP but the "multi-cast group" addressed with "private multi-cast address PR-MCA that is linked to the public multi-cast address PU-MCA" is not sent to mobile station MS2 but rather is kept "within the GPRS-SYSTEM." There is no discussion or suggestion of forwarding a link-layer frame to the mobile node, as in Claim 3.

For at least the foregoing reasons, Appellants respectfully request that the rejection of Claim 3 be reversed.

IV. REJECTION OF CLAIM 10 UNDER 35 U.S.C. § 102(a)

In the August 20, 2008, final Office Action, the Examiner rejected Claim 10 under 35 U.S.C. § 102(a) as being anticipated by Leroy. For at least the reasons set forth below, Appellants submit that the rejection of Claim 10 is improper and should be reversed. Rejected Claim 10 states:

> 10. The method according to claim 1, wherein said link-layer frame is **discarded by an access device** from the plurality of access devices **if the access device does not support the mobile node**.

(emphasis added.)

As discussed above, Leroy is silent with respect to the claimed "link-layer frame," and thus cannot possibly have described the features of Claim 10 involving the "link-layer frame." Nevertheless, the Examiner argues that Leroy discloses discarding a link-layer frame by access devices if they don't support the mobile node and cites paragraphs [0002,

0031-0034]. The Examiner says that "it is clear the MS de-register with the SGSN and the SGSN will updated the list of registered MS." (Final Office Action, dated August 20, 2008, page 3.) There are several problems with this argument. First, the Examiner cites evidence that does not support his position. Claim 10 requires that a "link-layer frame" is "discarded" by an access device. The de-registering of the mobile station (MS) of Leroy, which is cited by the Examiner as showing the claim element, involves the MS sending a message to the service node indicating it wants to leave. Specifically, Leroy states:

> ... In case a mobile station wants to be deleted as a member of a public multi-cast group, it will send a leave message which is treated in a similar way as the join messages. The service node thereupon de-registers the mobile station as member of the multi-cast group.

(Paragraph [0031].) Sending a de-register message and updating a list is not the same as an access device discarding a link-layer frame, as in Claim 10.

Second, paragraphs 0031-0034 of Leroy cited by the Examiner describe a registration mechanism by which service nodes register mobile terminals. There is no mention of the service nodes discarding anything when the access device does not support the mobile node. Indeed, there is no discussion of any kind of action that is taken where the access device does not support the mobile node. Leroy fails to show the claimed link-layer frame and, further, Leroy fails to show a link-layer frame which is "discarded by an access device from the plurality of access devices if the access device does not support the mobile node," as in Claim 10.

For at least the foregoing reasons, Appellants respectfully request that the rejection of Claim 10 be reversed.

CONCLUSION

In view of the foregoing discussion and arguments, Appellants respectfully submit that Claims 1-10 and 15 are not properly rejected under 35 U.S.C. § 102(a) as being anticipated by Leroy. Furthermore, Appellants respectfully submit that dependent Claim 3 is not properly rejected under 35 U.S.C. § 102(a) as being anticipated by Leroy. Yet still further, Appellants respectfully submit that dependent Claim 10 is not properly rejected under 35 U.S.C. § 102(a) as being anticipated by Leroy.

Accordingly, Appellants respectfully request that the Board reverse all claim rejections and indicate that a Notice of Allowance respecting all pending claims should be issued.

Respectfully submitted,

Date December 1, 2008

By _____

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CLAIMS APPENDIX

1. (Rejected) A method of forwarding a data packet, said method comprising:

receiving the data packet, wherein the data packet includes a unicast destination address corresponding to a mobile node;

generating a link-layer frame, wherein the link-layer frame includes a broadcast address and the unicast destination address; and

sending, via the broadcast address, the link-layer frame to a plurality of access devices, wherein at least one access device of the plurality of access devices supports the mobile node.

2. (Rejected) The method according to claim 1, wherein said broadcast address is predefined.

3. (Rejected) The method according to claim 1, further comprising:

determining that the at least one access device supports the mobile node; and

forwarding the link-layer frame to the mobile node.

4. (Rejected) The method according to claim 1, wherein said data packet is an IP data packet.

5. (Rejected) The method according to claim 1, wherein said broadcast address is a link-layer address.

6. (Rejected) The method according to claim 1, wherein said plurality of access devices store mappings between supported destination addresses and link-layer addresses corresponding to the supported destination addresses.

7. (Rejected) The method according to claim 1, wherein said unicast destination address is a network layer address.

8. (Rejected) The method according to claim 1, wherein the data packet further comprises a payload, and further wherein the payload is included in the link-layer frame.

9. (Rejected) The method according to claim 1, further comprising encapsulating said data packet into the link-layer frame.

10. (Rejected) The method according to claim 1, wherein said link-layer frame is discarded by an access device from the plurality of access devices if the access device does not support the mobile node.

11. (Withdrawn) An access device for forwarding a data packet, said access device comprising:

a receiving unit configured to receive a link-layer frame which is addressed to a multicast broadcast address, wherein the link-layer frame includes the multicast broadcast address and a unicast destination address of a mobile node;

a checking unit configured to check whether the mobile node corresponding to the unicast destination address is supported by said access device; and

a forwarding unit configured to forward said link-layer frame to the unicast destination address if the mobile node is supported by said access device.

12. (Withdrawn) The access device according to claim 11, further comprising a dropping unit configured to drop said link-layer frame if said checking unit determines that said mobile node is not supported.

13. (Withdrawn) The access device according to claim 11, wherein said unicast destination address is a network-layer address and said multicast broadcast address is a link-layer address.

14. (Withdrawn) The access device according to claim 11, wherein said access device comprises a cellular access point.

15. (Rejected) A routing device for forwarding a data packet, said routing device comprising:

a receiving unit configured to receive the data packet, wherein the data packet includes a unicast destination address corresponding to a mobile node;

a checking unit configured to determine whether a link-layer address corresponding to the mobile node is available;

an addressing unit configured to generate a link-layer frame if the link-layer address corresponding to the mobile node is not available, wherein the link-layer frame includes the unicast destination address and a broadcast address; and

a forwarding unit configured to forward, via the broadcast address, the link-layer frame to a plurality of access devices, wherein at least one access device of the plurality of access devices supports the mobile node.

16. (Cancelled).

EVIDENCE APPENDIX

There is no related evidence.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings.